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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, DC 20554

In the Matter of

Advanced Television Systems  
And Their Impact Upon the  
Existing Television Broadcast  
Service

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MM Docket No. 87-268

To: The Commission

COMMENTS

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OF

FOX TELEVISION

Introduction

Fox Television Stations Inc. (FTS) is the licensee of twelve television stations nationwide. FTS also has received Commission approval to acquire control of New World Communications Group (New World), which directly or indirectly owns ten additional television stations. Memorandum Opinion and Order in re Applications of NWCG (Parent) Holdings Corp. & NWCG Holdings Corp. and Fox Television Stations Inc., DA 96-1852, released November 7, 1996. Anticipating consummation of this transaction in early 1997, the Commission's DTV channel assignments for the New World stations were analyzed, as well as those of the FTS stations. FTS has not been able to complete a detailed analysis of the "Modified DTV Table" being filed in response to the Notice today. We expect to address that table in detail in our reply comments.

For over seven years, FTS has participated on its own behalf and as a member of the Broadcaster Caucus in numerous activities of the ACATS and the ATTC and has been a signatory to the joint comments of multiple broadcasters previously filed in this docket, as well as filing comments on its own behalf on several occasions. FTS has joined in the Joint Broadcaster Comments being filed today in response to the Notice, dissenting to portions, on which we amplify in these separate comments. FTS anticipates continuing to be part of the collective efforts of our industry, with the Commission's support and oversight, to enter the digital era and enhance the quality and nature of the broadcast service that we provide to the American public.

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In general, FTS agrees with many of the assignment and allotment principles developed through the ACATS process, and repeatedly endorsed by the Broadcasters, *i.e.*, use of terrain-sensitive propagation models to produce paired NTSC/DTV assignments that attempt to replicate and maximize stations' NTSC coverage areas to the greatest extent possible, while preserving existing NTSC service to the greatest extent possible. It must be acknowledged, however, that this overall design necessarily embodies conflicting and mutually exclusive goals to a certain extent, *i.e.*, efforts to achieve a universally optimal solution cannot overcome the laws of physics; moreover, such efforts are necessarily bounded by the extent of current technology.<sup>1</sup>

Additionally, as differently-situated parties inevitably will seek to promote different priorities, compromises must be made, either among industry members or, by default, by the Commission. The many risks and uncertainties attendant upon all aspects of the new digital operations mandate that every possible effort be made to design an assignment model that utilizes the most accurate and realistic assumptions. All participants in this process must be mindful of its sensitivity to the so-called butterfly effect, *i.e.*, its exquisite dependence on initial conditions. In other words, local causes often have global consequences. It is in this spirit that FTS offers the following comments.

#### Discussion

Based upon our review of the Commission's proposals in the Notice, we believe that the Commission has done an excellent job of achieving the goal of replicating existing service areas with new DTV allocations; however, by utilizing average figures for the various parameters of stations' operations, rather than more precise values, and by violating its own average spacing requirements in some cases, it appears that replication will not occur, due to significant interference conditions, in certain cases.

Specifically, Fox performed studies using frequency and location-specific values for each of the Commission's proposed assignments for the FTS and New World stations and for their counterpart NTSC stations and found that in most cases existing service would be effectively replicated; however, four of the 22 existing NTSC stations that were examined would suffer significant interference from new DTV assignments:

WNYW	New York, NY	NTSC channel 5	DTV interference from Hazleton, PA
WTXF	Phila., PA	NTSC channel 29	DTV interference from Baltimore
WFLD	Chicago, IL	NTSC channel 32	DTV interference from Janesville, WI & Lafayette, IN

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<sup>1</sup>The former always will be true; the latter is an evolving factor that permits speculation that technological advances will allow us to more closely approximate optimal solutions the future, assuming today's goals do not change.

WJBK            Detroit, MI            NTSC channel 2            DTV interference from Lorain, OH

The results of engineering studies illustrating the effects of each of these five interference from DTV assignments are attached to these comments.

Significantly, in each of these cases, the DTV assignments are short spaced under the FCC's own spacing rules. FTS recommends that the FCC assign other DTV channels to the interfering stations.

One DTV assignment, to New World station WJW, channel 4, Cleveland, Ohio, appears to have unacceptable levels of interference from existing NTSC stations in Detroit, MI, Buffalo, NY, Columbus, OH and Pittsburgh, PA.

It is imperative that the Commission evaluate situations such as these and find a cure to avoid the significant levels of interference that would have an impact on future service to the public.

As stated above, we have not yet completed similar analyses of the "Modified Table;" but we have identified a common difficulty that flows from the use of low-band VHF frequencies for transitional DTV channel assignments. In general, due to the crowded nature of this part of the band and the propagation characteristics of low-band VHF channels, we recommend that such channels should not be utilized for DTV assignments.<sup>2</sup> In particular, the assignments of DTV channel 6 to FTS station WTTG in Washington, DC and to New World station WAGA in Atlanta (both operate on NTSC channel 5), would be contrary to the public interest, because the DTV operations would appear to suffer significant interference from co-channel NTSC stations in other markets. Based upon our studies, such assignments would result in interference to existing co-channel NTSC stations in other markets, as well as suffer interference from co-channel NTSC stations in other markets, for several reasons:

- Low VHF signals travel significantly farther than those in higher bands, which causes interference to existing operations.
- Significant interference already exists within the low VHF band among the numerous NTSC stations operating there.
- There is more man-made noise in the low VHF band, which requires greater power to overcome.
- It is not economically practical to manufacture directional transmission antennas for VHF facilities.

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<sup>2</sup>Notwithstanding, non-located minimum facilities VHF DTV assignments may be acceptable on a case-by-case, "drop-in" basis where critically necessary and where adverse interference conditions would not result.


- Channel 6 may sustain interference from non-commercial FM radio stations.

Finally, we believe that, at this stage, using the ACATS-established noise figure of 10dB among the planning factors may be prudent, while continuing to attempt to improve to 7dB at UHF through the ongoing regulatory and negotiation process.

### Conclusion

In light of the monumental complexity of the task with which the government and the industry have been grappling for nearly ten years, we find it remarkable that there is so much unanimity about so many details, as well as basic principles. The congruence of views in so many areas certainly overshadows the various differences. This fact should give all entities involved in the process of developing digital broadcast television reason to hope for a successful transition.

Respectfully submitted,



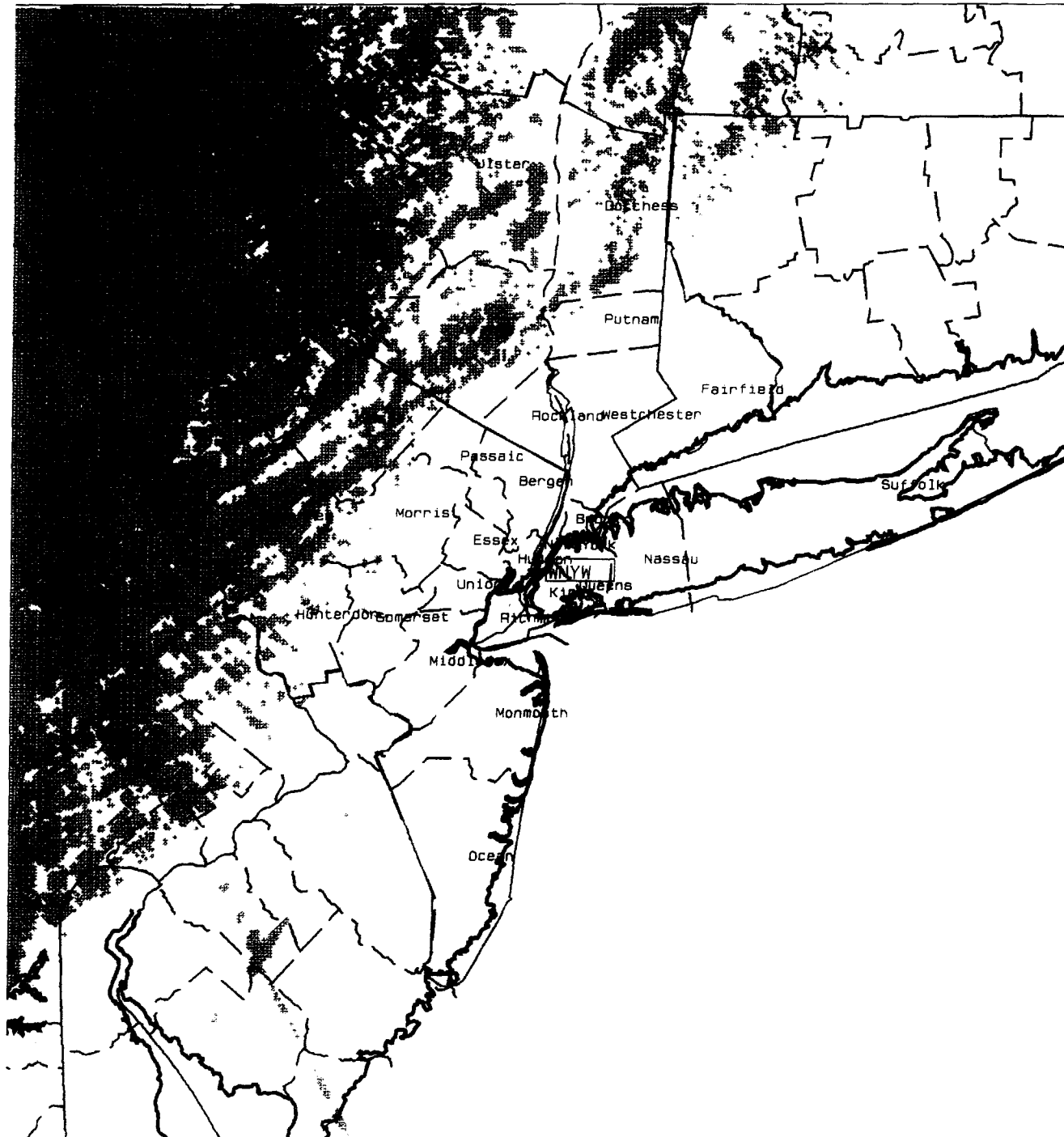
Molly Pauker  
Vice President, Corporate & Legal Affairs  
Fox Television Stations Inc.  
5151 Wisconsin Avenue, NW  
Washington, DC 20016

November 22, 1996

## **ATTACHMENT**

### **Planning Factors** (Low VHF)

1. Receive Antenna
  - a. Gain: 6dB
  - b. Front-to-Back Ratio: 8dB
  - c. Lead-in Loss: 1dB
  - d. Height above ground: 9 meters
2. TV Set Noise Figure: 10dB (6mHz noise bandwidth)
3. Desired (NTSC) to Undesired (ATV) Ratio: 34.4dB
4. "f" Sensitive Dipole Factor
5. Confidence Factor: >90%
6. Locations 50%, Time 10% for the undesired signal
7. Actual terrain along paths used (not roughness) and the value of K is the annual mean



MSITE (tm) - EDX Engineering, Inc.

Time: 10.00% Loc: 50.00% Margin: 10.0 dB

Climate: Continental Temperate

Gndcvr: None

Atm. factor: None

K Factor: 1.550

RX Antenna - Type: DA-TX 1 orien.

Height: 9.0 mtrs AGL Gain: 5.0 dBd

C/I ratio: first site to others

> 34.4 dB  
 < 34.4 dB

Minimum signal level: -100.0 dBm

Site	Ant Elv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
WNYW	530.0	42.41	DA-H	N 40 42 43.0
		79.0000 MHz	.0	W 74 0 49.0
WWLF-A	670.0	30.00	DA-H	N 41 2 13.0
		79.0000 MHz	.0	W 76 5 7.0

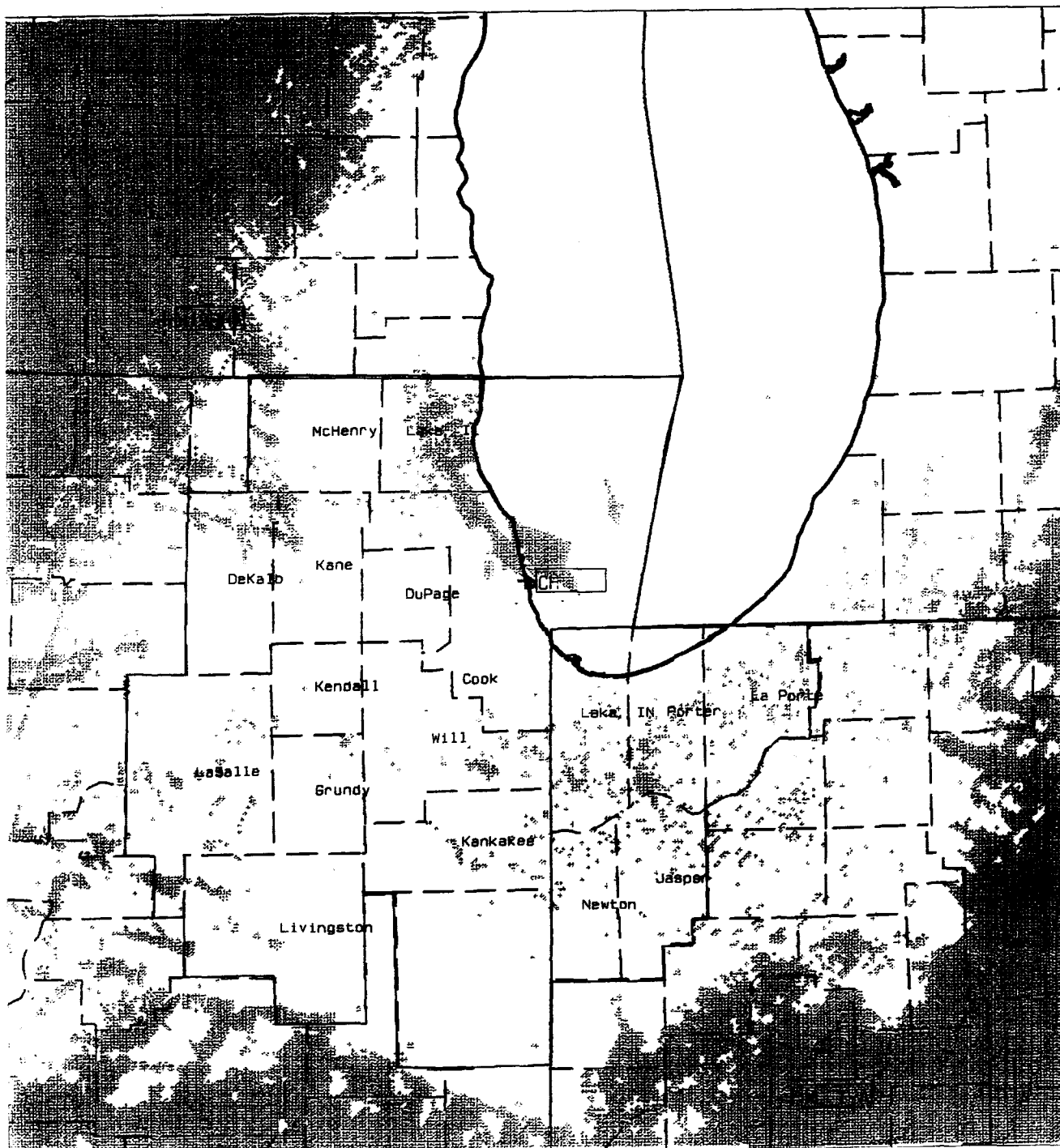
KILOMETERS  
  
 50 0 50

WNYW CH5 NY, NY CO CH

Inter fr Hazelton PA ATV Sta

November 6, 1996

Figure 5



MSITE (tm) - EDX Engineering, Inc.

Time: 10.00% Loc: 50.00% Margin: 10.0 dB  
 Climate: Continental Temperate  
 Gndcvr: Groundcover database  
 Atm. factor: None  
 K Factor: 1.460  
 RX Antenna - Type: DA-TX 1 orien.  
 Height: 9.0 mtrs AGL Gain: 10.0 dBd

C/I ratio: first site to others

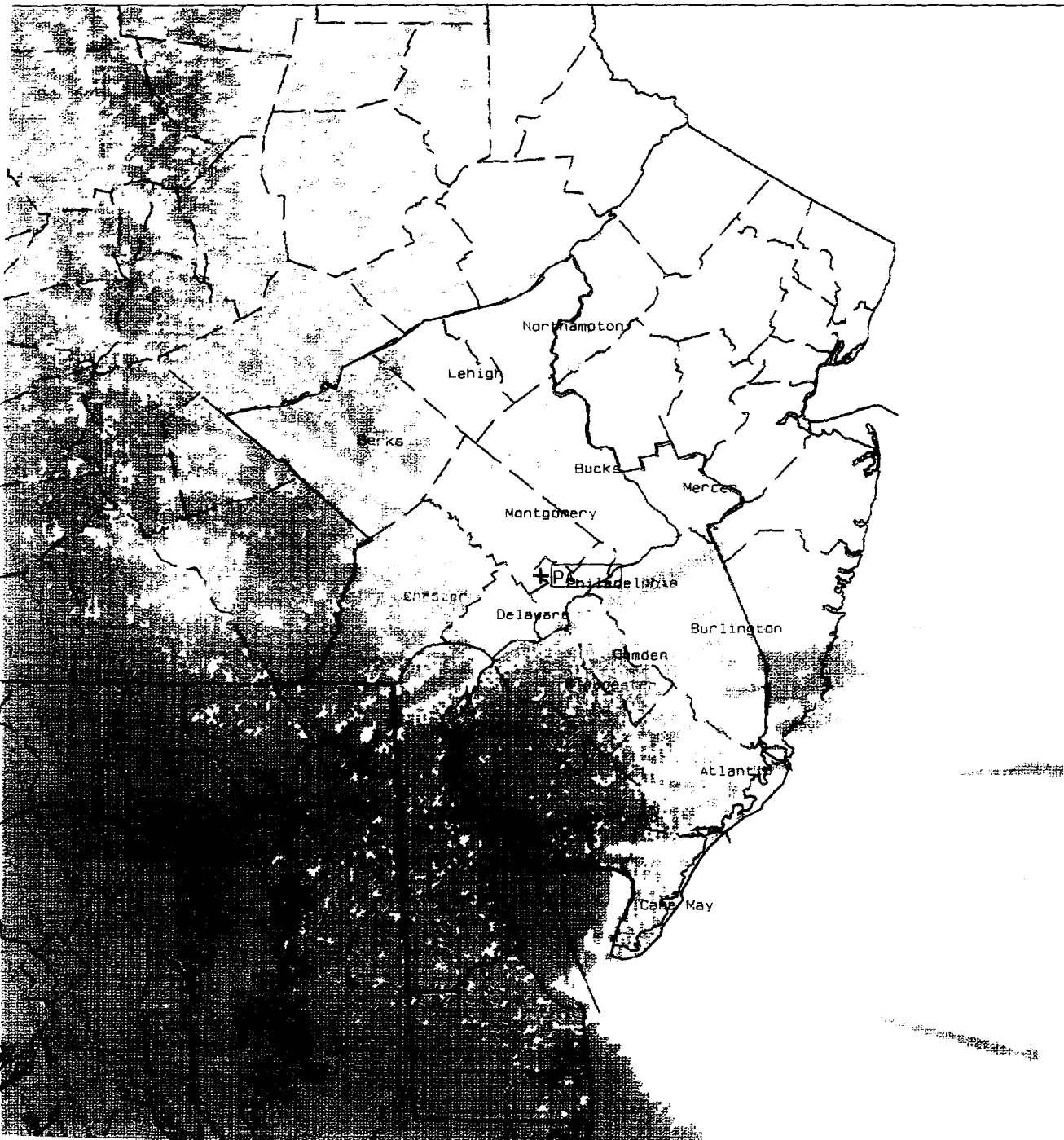
□ > 34.4 dB  
 ■ < 34.4 dB

Minimum signal level: -100.0 dBmW

Site	Ant Elv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
CH	624.0	67.00	DA-H	N 41 53 55.5
	581.0000 MHz		.0	W 87 37 23.0
WLFI-A	473.0	48.00	DA-H	N 40 23 20.0
	581.0000 MHz		.0	W 86 36 46.0
W19BHA	311.0	47.00	DA-H	N 42 39 35.0
	581.0000 MHz		.0	W 89 2 32.0

KILOMETERS  
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WFLD CH 32 CHI ILL  
 Co Ch Inter. fr New ATV Sta's  
 November 5, 1996 Figure 3



# MSITE (tm) - EDX Engineering, Inc.

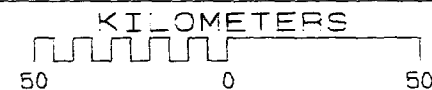
Time: 10.00% Loc: 50.00% Margin: 10.0 dB  
 Climate: Continental Temperate  
 Gndcvr: Groundcover database  
 Atm. factor: None  
 K Factor: 1.500  
 RX Antenna - Type: DA-TX 1 orien.  
 Height: 9.0 mtrs AGL Gain: 5.0 dBd

C/I ratio: first site to others

> 34.4 dB  
 < 34.4 dB

Minimum signal level: -100.0 dBmW

Site	Ant Elv		Ant. Type /Orient.	Coordinates	
	AMSL (mtrs)	ERPd (dBW)			
PA	430.0	57.00	DA-H	N 40 2 26.0	
	563.0000 MHz		.0	W 75 14 20.0	
WHSW-A	428.0	47.00	DA-H	N 39 17 15.0	
	563.0000 MHz		.0	W 76 45 38.0	



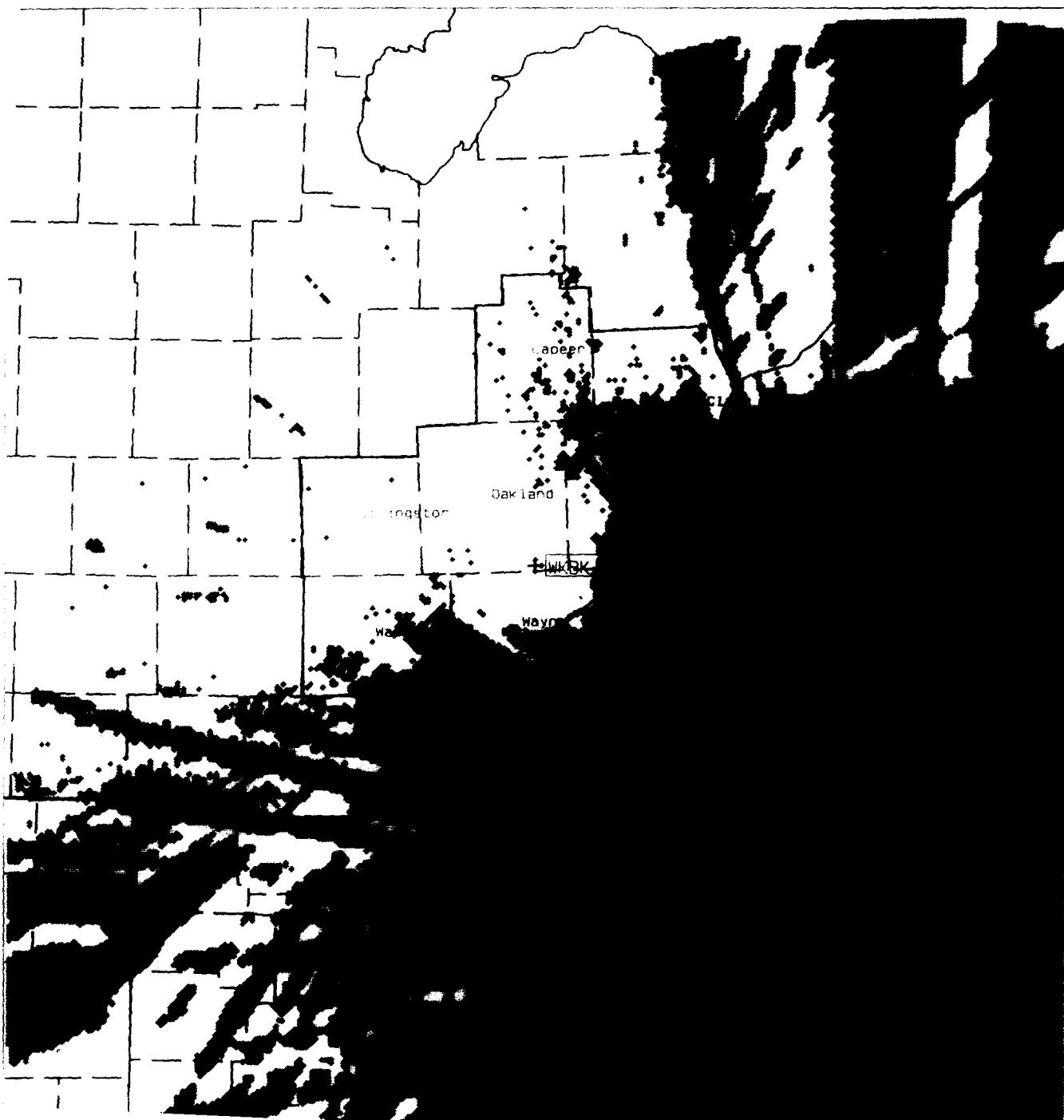
WTFX PHI PA CO CH INT

For New ATV Sta @ Baltimore MD

November 5, 1996

Figure 3





MSITE (tm) - EDX Engineering, Inc.

Time: 10.00% Loc: 50.00% Margin: 10.0 dB

Climate: Continental Temperate

Gndcvr: Groundcover database

Atm. factor: None

K Factor: 1.400

RX Antenna - Type: OMNI

Height: 3.0 mtrs AGL Gain: .0 dBd

C/I ratio: first site to others

34.4 dB

< 34.4 dB

Minimum signal level: -100.0 dBm

Site	Ant. E1		Ant. Type	Coordinates
	AMSL (mtrs)	ERP (dBW)		
WJBK	527.0	50.00	DA-H	N 82 27 39.0
		57.0000 MHz		W 83 12 11.0
WUAB	599.0	30.00	DA-H	N 41 22 48.0
		57.0000 MHz		W 81 43 17.0

KILOMETERS

50 0 50

WJBK DETROIT

CH 2 INTER W/WUAB-AT (OMNI RCV)

NOV 1, 1996

FIGURE 6

MSITE(tm) - EDX Engineering, Inc.

Time: 99.00% Loc: 50.00% Margin: 10.0 dB  
 Climate: Continental Temperate  
 Gndcvr: Groundcover database  
 Atm. factor: None  
 K Factor: 1.450  
 RX Antenna - Type: OMNI  
 Height: 3.0 mtrs AGL Gain: .0 dBd

Received Power Levels (base-to-mobile):

> -81.0 dBmW  
 < -81.0 dBmW

Minimum signal level: -64.7 dBmW

Site	Ant Elv AMSL (mtrs)	ERPd (dBW)	Ant. Type /Orient.	Coordinates
WJW	592.0 69.0000 MHz	34.47	DA-H .0	N 41 21 47.0 W 81 42 58.0

KILOMETERS

50 0 50

WJW-AT Cleveland, OH

Ch 4 FCC Fx Grade "I"

October 30, 1996

Figure 2

